

JUL 11 1955

SCIENCE AND TECHNOLOGY

sci

The Citrus Industry

Representative of Every Interest
Representing No Special Interest

STACKS

Vol. 36 — No. 7

JULY, 1955

AMONG FLORIDA CITRUS LEADERS



JOHN A. SNIVELY, JR.

Member of a pioneer citrus family long prominent in citrus circles as growers, packers, shippers and canners of citrus fruits. Active in every phase of citrus endeavor.

Insect Control
For July, 1955

Citrus Survey

Sampling, Analysis
And Reaction

Florida Annual
Crop Survey

Every That Fungi
Leads To Light May
Aid Research

Annual Meeting
Grown And Shippers
League

Chemical Farming With
Chemical Fertilizers

Subscription \$1.00 Per Year
Continental U. S.
Per Year Outside

MIAMI, FLORIDA

BUDWOOD SELECTION

Bearing citrus trees are only as good as the parent trees from which their budwood was cut. Budwood used to propagate LAKE GARFIELD citrus trees is cut from bearing trees in our own groves which have been carefully inspected for size, shape, and fruit yield. Trees selected as a source of budwood are distinctively marked. This is an important part of our program to assure our customers of the finest citrus trees that can be grown.

Place Your Order Now

For The Trees You Will Need

NEXT WINTER AND SPRING

We will have available Valencia, Pineapple and Hamlin Orange trees on rough lemon rootstock.

We invite you to inspect our
budwood trees and nursery stock

Lake Garfield Nurseries Co.

P. O. Box 154-T : Bartow, Florida

Office:
North of
Postoffice

Telephones:
Day—2-4601
Night—2-5511 and 3-1451

BUDWOOD SELECTION AND QUALITY Is Our Motto

July, 1951



R. L. Davis

Purple
high level
occurring
month.
not be
year, if
average
in the
and the
favorable
of old
month
Red s
early in
early hi
but will
end of t
location
The pre
at the
percent
younger
mature
another
Rust
sharply
month.
rapid in
rust mi
scale co
Purple
time and
infested
fall occ
may be
to a lo
month.
Mealy
peak ear
that dar
groves t

Purple
ple mite
control
operation
als, con
effective
factors
ful spra
Since
scale ha
able to

*Written
by
Davis, T
J. B. Wee
Lake Alfr



R. M. Pratt

Citrus Insect Control



R. B. Johnson

For July
1955

W. L. THOMPSON,
R. M. PRATT
R. B. JOHNSON*
Florida Citrus Experiment
Station, Lake Alfred



W. L. Thompson

Purple scale activity will be at a high level through July, with the peak occurring before the middle of the month. While the population may not be quite as high as it was last year, it will be substantially above average. The percentage of scales in the younger stages will be high, and thus conditions will be most favorable for control. The number of old scales will increase as the month progresses.

Red scale activity will be at a peak early in July and will not be particularly high for the state as a whole, but will be fairly high in the southern end of the Ridge District and in some locations in the Indian River Districts. The present hatch will be at a peak at the end of June and a very high percent of the scales will be in the younger stages. Many scales will be mature at the end of the month and another hatch will occur in August.

Rust mite activity is increasing sharply and will be high through the month. As usually occurs, the most rapid increase may be expected when rust mite infestations interfere with scale control.

Purple mite activity is high at this time and many groves are still heavily infested. Assuming that normal rainfall occurs, the level of infestation may be expected to decline sharply to a low level by the end of the month.

Mealybug infestations will reach a peak early in July. It does not appear that damage will be serious in many groves this year.

SPRAY PROGRAM

Purple and red scale, mealybug, purple mite, rust mite, and greasy spot control are all problems in July grove operations. Choosing effective materials, correct timing of sprays and effective combination sprays are factors to be considered in a successful spray program.

Since the peak of young purple scale has been reached, it is advisable to spray heavily infested groves

as soon as possible. Rust mite infestations will develop in some groves when the scalcicide should be applied. If such is the case, a parathion-wettable sulfur spray is preferred for combined scale and rust mite control. If desirable, lime-sulfur may be added to the parathion-sulfur spray. If oil is to be used for scale control, the degree of infestation of rust mites is the factor that will determine whether the sulfur or the oil spray should be applied first. If not more than 10 percent of the fruit is infested, the oil can be applied first and followed with sulfur in about three weeks. If more than 10 percent of the fruit is infested, wettable sulfur or sulfur dust should be applied first and followed with oil three weeks later or after the rain has washed the sulfur from exposed areas of the fruit. The reason for this is that although oil kills rust mites, it has no fumigating effect and very little, if any, residual action. Inside fruit and fruit protected by leaves are not entirely covered with the spray with the result that mites are not killed on these protected areas. At this time of the year, heavy rust mite infestations can develop within a couple of weeks. Therefore, it is necessary to have very few rust mites right after the oil spray so that it will not be necessary to apply sulfur in less than two or three weeks after the oil application.

Greasy spot control should be considered in most groves in central Florida and groves on light sandy soils in the coastal area. Severe leaf drop occurs during the winter and spring when leaves have been affected with greasy spot. Even though greasy spot on orange trees may not be very noticeable, excessive drop of leaves affected by greasy spot may follow adverse conditions such as cold weather, dry weather and shock from an oil spray.

Timing of applications is an important part of the program. Bright fruit for the fresh fruit market is becoming more important and high solids in the juice is important to both the fresh fruit market and cann-

ing plant. Therefore, where color and high solids are factors, oil sprays should be applied by mid-July. Purple and chaff scale on fruit prevent degreening in areas where they have settled and these green spots are grade lowering factors, especially on early varieties. Care should thus be taken to have the fruit fairly free of scale. This being a favorable year for purple scale, the scalcicide should be applied before the fruit is heavily infested. A very thorough coverage of fruit and leaves is necessary.

Scale Control: Satisfactory scale control can be obtained with oil emulsion (1.3 percent actual oil), 15 percent parathion at 1 to 1.7 pounds per 100 gallons, a combination of 0.7 percent oil plus 1 pound of 15 percent parathion or 3 to 5 pounds of 25 percent malathion. Oil and oil-parathion combinations are the most effective materials for the combined control of scale, purple mite, and, to a certain extent, greasy spot. The oil-parathion combination does not adversely affect the solids or color as much as 1.3 percent oil. Parathion and wettable sulfur is the most effective combination for scale and rust mite control and does not affect either solids or color.

Mealybug Control: Either parathion or the oil-parathion combination is effective for mealybug control. Best results are obtained where the application is made before the mealybug becomes massed between fruit hanging in clusters and around the fruit stems.

Greasy Spot Control: Where greasy spot has been severe in grapefruit groves and where high solids and good color are factors, a combination of parathion, wettable sulfur and a neutral copper can be used. Use the copper at a concentration equivalent to .4 to .5 pound of metallic copper in the form of a neutral copper. If an oil spray is to be used as the scalcicide, it can be applied early in the month followed with a copper-wettable sulfur in late July or to about August 7. Summer copper sprays are not recommended for

(Continued on Page 18)

*Written June 24, 1955. Reports of surveys by Harold Holtberg, Cocoa; J. W. Davis, Tavares; K. G. Townsend, Tampa; J. B. Weeks, Avon Park; and T. B. Hallam, Lake Alfred.

The best time to control scale is now...

USE PARATHION

the most effective and most economical
citrus scalecide

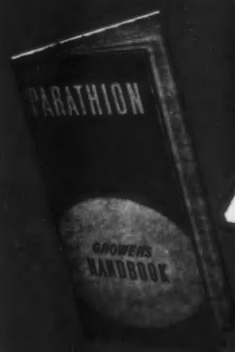
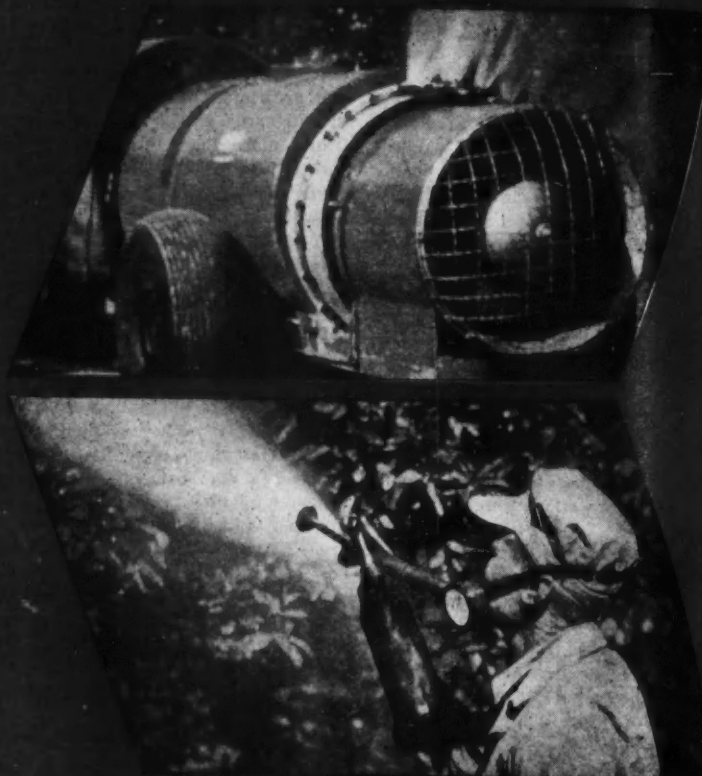
Parathion applied during July and August controls:

RED SCALE
SILVER SCALE
LEAFHOPPER SCALE
ANTHONY-CUSHION SCALE

A higher percentage of the young stages of these scale insects will be present during these two months. Control obtained at this time will last longer into the Fall than when treatment is made earlier in the year.

Spraying with parathion—at any time of year—gives you all these advantages:

- Higher yields
- Much better fruit color
- Less chance to freeze
- Low leaf drop
- No reduction in sugar or Vitamin C content
- Parathion does not accelerate ripening and is compatible with nearly all spray materials.



WRITE FOR
THE NEW
PARATHION
GROWER'S
HANDBOOK



Parathion is available from:

AVAILABLE FROM NATIONAL MANUFACTURERS

Consult local agricultural authorities for suggestions
on dosage and application procedures.

AMERICAN Cyanamid COMPANY

Manufacturers of *Disinfectant* Parathion Technical
Agricultural Chemicals Division
Greenville, Florida

The Citrus Industry

EXCLUSIVE SPECIALIZED CITRUS
PUBLICATION

Issued Monthly

Representative of every interest
Representing no special interest ✓

Publication office at Bartow, Florida. Entered as second class matter February 16, 1920, at the post office at Tampa, Florida, under act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow, Florida, under act of March 3, 1879.

The Citrus Survey

At Citrus And Subtropical Fruits Institute, Lake Placid, Florida

THE CITRUS SURVEY

The importance of the citrus industry to Florida's economy is unquestioned. In the 1953-54 season, growers received about \$255 million for their crop. Economists tell us that money earned by a basic industry, such as the citrus industry, will be utilized from five to seven times in the business of the immediate area. Thus, we can see that the citrus crop alone is a major factor in the local business enjoyed by the merchants, service organizations, and professional workers. As a result, every individual in Florida should be vitally concerned with the welfare of this industry.

Any businessman knows the necessity for having a thorough knowledge of his inventory, and manufacturers must know a plant's ability to produce, as well as the available supply of raw materials. The citrus industry is comparable to the businessman or manufacturer in many ways, yet no effort had been made to obtain an inventory of the basic unit of the industry—the citrus tree. The State Plant Board of Florida was approached by an interested committee in the spring of 1954, to see whether they could, or would, help with a citrus survey. A pilot survey in Highlands County late that spring indicated the survey to be both practical and feasible.

The information and experience obtained from this pilot survey were made available to a committee composed of representatives from:



— By —

JOE N. BUSBY

Assistant Chief Plant Inspector
State Plant Board of Florida

The citrus growers, represented by
Florida Citrus Mutual.

Florida Citrus Commission.

Florida Agricultural Experiment
Station.

Florida Agricultural Extension
Service.

Florida Department of Agriculture.
Growers' Administrative Committee.
Crop Estimating Service of the
U. S. D. A.

State Plant Board Of Florida.

The committee passed a resolution favorable to the project and presented it to the Board of Directors of Florida Citrus Mutual. This organization agreed to seek the money believed to be needed for the completion of such a project. The State Plant Board of Florida agreed to utilize on this project that portion of its budget allocated for routine grove inspection. Additional funds were raised as follows:

Florida Citrus Commission	\$50,000
Florida Citrus Mutual	12,500
U.S.D.A. Research and Marketing Administration	62,500
Total additional funds	\$125,000

This money was placed in trust with the Florida Department of Agriculture for use by the State Plant Board of Florida on the citrus survey.

The survey actually got under way on August 15, 1954. From the very beginning, the work progressed more slowly than was anticipated, because adequately trained men were not available at once. Men for work on the survey had to be capable of identifying the commercial varieties of citrus; differentiate between and identify commercial rootstocks; identify major citrus diseases by field symptoms; know the methods of planting used in citrus groves; and be able to read maps and write legal descriptions of grove properties. Since

the information obtained from the citrus survey would be no better than the field men doing the work, the State Plant Board decided to move at a slower pace, rather than hire incompetent field men. Because of this decision, the survey will take two fruit seasons to complete, rather than the one season originally aimed for by the committee.

All of the information obtained from this survey is coded and placed on International Business Machine (IBM) cards for ease in filing and to make possible more efficient use of the data. The Statistical Laboratory at the University of Florida is doing this work on a contract basis and they have been able to tabulate the information as rapidly as the Plant Board has been able to do the field work. As a result, summaries of the citrus survey by counties are available soon after the field work is completed. The summaries are released to the public by counties. Specific information on an individual grove is confidential and is released only to the grower or his legal representative, and then only when the State Plant Board has a written request from the owner. The summary on Polk County is complete and has been released. I want to point out a few facts of interest to you that are found in this summary:

Polk County has approximately one-fourth of the estimated citrus acreage in Florida. Since the planting system was recorded and the tree spacing measured, it was possible to compute an accurate net acreage. Polk County has a total of 121,793 net acres of citrus. This does not include spots within the grove that can not be planted, such as ponds. The survey shows a total of 8,177,643 trees on this acreage, of which 7,910,598 trees were reported as commercial and 267,045 trees, as door-yard or non-commercial plantings. There were 193,326 vacant tree spaces in the commercial groves and 226,555 non-bearing trees used as resets. A total of 719,717 trees were counted in newly planted non-bearing groves.

The total trees in Polk County broken down by kinds of fruit are as follows:

ORANGE

Early 1,058,827; Mid-season 1,066,539; Late 3,126,883; Total 5,252,249.

GRAPEFRUIT

Seedy 1,060,573; White seedless (Marsh) 596,233; Pink seedless (Pink Marsh) 113,093; Red seedless 152,467; All seedless 861,793. Total 1,922,366.

Mandarin — 280,842

Hybrid — 203,291

Acid fruit — 200,765

Miscellaneous fruit — 51,085

TOTAL CITRUS TREES — 7,910,598
The final report will give much more detailed information than has been given in the preliminary county summary, and will include a complete breakdown by age groups, varieties, and rootstocks.

Of interest to the State Plant Board, research personnel, and to the grower are losses caused by diseases. The number of trees showing a decided decline in production, or completely out of production, and the diseases are listed as follows:

CITRUS DISEASE

Spreading decline	97,178
Foot rot	51,062
Heart rot (pruning injuries, etc.)	46,462
Blight	15,668
Water damage	12,237
Pecorosis	10,367
Xyloporosis	3,139
Tristeza	1,079
Lightning injury	66
Other and unidentified diseases	15,665
Total disease losses	252,973

TREES

97,178
51,062
46,462
15,668
12,237
10,367
3,139
1,079
66
15,665
252,973

This means that Polk County growers are presently losing in production the equivalent of 3,775 acres of citrus because of diseases. Many more trees are affected by diseases and have a reduced yield but are still not in a serious state of decline and were not included in the report. Such would be the case around the margins of spreading decline areas.

In addition to Polk County, the survey crews have worked in other counties as follows:

CITRUS SURVEY COUNT TO JUNE 2, 1955 (Not including sample)

COUNTY	TREES	VACANCIES	RESETS
Broward	253,375	22,145	13,967
Collier	9,787	248	232
Dade	513,617	21,865	51,975
Hendry (completed 1-12-55)	47,688	3,949	2,558
Highlands (completed 5-27-55)	1,444,025	23,956	38,919
Indian River	296,715	4,256	7,721
Lake	446,975	15,257	13,913
Lee (completed 5-26-55)	242,186	12,692	8,399
Pasco	736,481	20,458	9,932
Pinellas (completed 5-27-55)	1,083,007	23,913	29,833
Putnam	133,465	5,917	4,112
St. Lucie	332,855	857	2,550
TOTAL	5,540,126	155,513	184,111

The crews have been removed from survey work in commercial groves until about September 1, 1955, because of the difficulty of identifying varieties at this season. Several crews will complete work on the dooryard properties in cities and towns this summer, since varietal identification is not important on these trees.

As the information collected from this survey is analyzed, I am sure that a number of uses will be made of it that will benefit the entire industry. Some of the ideas that have already been advanced will more than compensate the industry for the cost of the citrus survey.

The inventory of varieties by a bearing surface age, rootstock, and estimate of grove condition will aid

the Crop Estimating Service by making it possible for them to use new and better techniques in preparing the Florida citrus crop estimate. A knowledge of the non-bearing trees planted will make it possible to estimate production for about five years in advance. This will enable the industry, the Florida Citrus Commission, Florida Citrus Mutual, and other organizations to plan for the handling of the crop in advance.

A complete survey of losses due to diseases will be available to the industry for the first time. Research workers will be able to concentrate

their effort on the more serious problems, and information on practical control measures can be disseminated to growers through county agents and institutes such as this. The survey teams have reported 460 properties suspected of having spreading decline to date. This information has been given to the Plant Board spreading decline laboratory to be checked for a positive identification. The results on this disease are of such serious consequence, that the owner is notified

immediately if the samples taken prove to be positive for the burrowing nematode. This survey will, no doubt, help to locate many spots of spreading decline while the decline area is still small. This alone is a tremendous importance to the industry. The Plant Board has known for some time that diseases are often correlated with rootstocks, but the survey is the first time that such information has been recorded in a form that can be studied.

A complete map showing the exact distribution of citrus by sections is being prepared with information obtained from the survey. This distribution map will enable investors to place processing plants in areas that will give them the required

(Continued on Page 8)

Soil Sampling, Analysis And Reaction

Sampling

The measurement of the amount of any nutrient element or the soil reaction is no better than the sample on which the measurement is made. The soil sample must be representative of the area in question or the results will be valueless and even worse, misleading. The importance of an adequate sample cannot be overemphasized. Briefly the steps to be taken in sampling soil in citrus groves are as follow:

1. **Tools Required.** For sandy soils use a stainless steel tube one inch in diameter with a sharp hardened steel cutting edge slightly constricted on the inside. For clays use an auger. If copper or zinc are to be determined, brass tools should not be used.

2. **Sample Location.** Samples should be obtained about one foot outside the tree spread or leaf drip to a depth of six inches for pH and general analysis. Greater depths or other locations with respect to the tree should be kept separate and so marked. Locations differing in topography, and previous liming or fertilizer treatments should not be mixed.

3. **Number of Samples Required for Composite.** At least 16 soil cores from different sides of 16 trees taken from an apparently uniform grove area are required for a composite representing a particular area. Areas larger than 10 acres will require more than one composite sample.

4. **Time to Obtain Samples.** Samples should be taken at least once each year to follow changes in soil pH. Samples taken after the summer rains and before fall fertilization are preferable.

5. **Sample Preparation.** The composite samples should be air dried as soon as possible then screened to remove roots, leaves, etc., and thoroughly mixed. Soil thus prepared can be stored in any clean, well sealed container. Screens or containers should not be made of brass if analysis are to be made for copper or zinc.

FACTORS ADVERSELY AFFECTING ADEQUATE SAMPLES

1. Improper tools.
2. Too few individual samples representing a composite.
3. Inadequate coverage of area in question.
4. Mixing samples taken from different locations with respect to the



I. W. WANDER

SOIL CHEMIST, CITRUS EXPERIMENT STATION, LAKE ALFRED
AT SECOND CITRUS AND SUBTROPICAL FRUITS INSTITUTE

method or methods of handling the major soil types used for producing citrus. Often too much importance is attached to the soil analysis alone, which results in misleading recommendations. It should be remembered that any diagnosis of difficulty is the result of observing a number of variable factors only one which is soil fertility.

Assuming adequate sampling and competent analytical work, the ultimate value of soil analysis on individual groves depends on the interpretation of such analysis by competent personnel. Based on our present knowledge and where adequate interpretation is available it is believed that estimations of organic matter, soil reaction (pH), total phosphorus, manganese and copper will be of value. For the acid sandy soil types an estimation of exchangeable calcium and magnesium are believed to be of value on calcareous soil types. Under certain conditions an estimation of total soluble salts may explain difficulties not otherwise explained.

Analysis which are believed to be of little or no value to citrus growers are determinations of nitrogen, potash, zinc, iron, molybdenum, boron and sulfur.

Soil Reaction

Often soil pH is accepted by growers as just a number indicating whether they should or should not use any soil amendments (dolomite or limestone) in a specific grove. Other soil characteristics and conditions are not taken into consideration and thus pH alone is often misinterpreted and wrongly applied as a guide to soil maintenance. It is necessary to realize that a soil pH measurement will only indicate the availability of nutrients if present but will not tell what kinds or how much are present. It is obvious that if a nutrient is not

tree.

5. Mixing of different soil horizons, depths or types.
6. Samples taken without regard to time of previous fertilizer or liming applications.
7. Improper drying.
8. Storing in inadequate or unclean containers.

Analysis

The major value of soil analysis to the Florida Citrus Grower lies principally in the field of fundamental research in order to evaluate the best

Relationship of pH to Acidity and Alkalinity

		pH	
Relative Alkalinity	100,000	12	— Too Alkaline for Citrus
	10,000	11	
	1,000	10	
	100	9	— Citrus will grow but nutrients such as iron, manganese, copper & zinc are slightly available.
	10	8	
	1 Neutral	7	
Relative Acidity	10	6	— Best range to maintain (5.5-6.2)
	100	5	
	1,000	4	— Citrus grows but nutrients leach rapidly
	10,000	3	
	100,000	2	— Too acid for Citrus

present it cannot be available to plants regardless of pH. Only when pH is used in conjunction with a knowledge of the nutrient concentrations and nutrient holding capacities of soils can an adequate interpretation be made.

Relation of pH to Availability of Nutrients

Nitrogen: Soluble forms available over a wide range of pH. Practically no effect on leaching. Main effect is

Percent Organic Matter in Soil	Initial pH	1.	1.5	2.	2.5	3.
4.4		1500	2250	3000	3750	4500
4.6		1300	1950	2600	3250	3900
4.8		1100	1650	2200	2750	3300
5.0		900	1350	1800	2250	2700
5.2		700	1050	1400	1750	2100
5.4		500	750	1000	1250	1500
5.6		300	450	600	750	900

indirectly through effect on microorganisms in which conversion of ammonia to nitrates is markedly reduced below pH of 5.5.

Phosphorus: Apparently available to citrus over a wide range in pH. Solubility reduced at pH 5.5 and above so that conservation of phosphates is accomplished when soil pH is maintained at pH 5.5 to 6.0.

Potassium: Available to citrus over a wide range in pH. Solubility not appreciably affected by adjusting pH on organic sands so little can be done to conserve against leaching losses.

Calcium: Available over a wide range in pH. Used in carbonate form to adjust pH in acid sands.

Magnesium: Available over wide range in pH. Leaching losses increase below pH 5.5 so that some conservation of magnesium can be accomplished by maintaining pH at 5.5 to 6.0.

Manganese: Available at pH 6.5 and lower but relatively unavailable above neutrality. Leaches readily below pH 5.5.

Copper: Available at pH 6.5 and lower. Less available above neutrality. Leaches more rapidly at pH 5.5 and lower but accumulates to considerable extent at pH 4.0.

Zinc: Similar to manganese.

Boron: Available over a wide range in pH with some indications of decreased availability above pH 7. Little information known concerning conservation against leaching but would appear to leach faster at pH's below 5.5.

Iron: Availability decreased above pH 7.0 by formation of hydroxides and below pH 5.0 by formation of insoluble phosphates. Lost by leaching under reducing conditions caused by high water table.

Molybdenum: Increasingly available above pH 5.5 and decreasingly available below pH 5.5.

Sulfur: Apparently available over

a wide range in pH. Used to lower pH, that is, increase acidity and combines with limestone and dolomite to form soluble calcium and magnesium sulfates which leach readily.

Soil Reaction (pH)

Table showing the pounds of dolomite or finely ground agricultural limestone required per acre to adjust the soil pH to about 5.8 in sandy grove soils containing different amounts of organic matter.

The ability to change the reaction of sandy grove soils containing very little clay depends primarily on their exchange capacity which in turn is directly related to the organic matter present. Most of the soils on which citrus is growing in Central Florida contain between 1 and 2 percent organic matter.

THE CITRUS SURVEY

(Continued From Page 6)

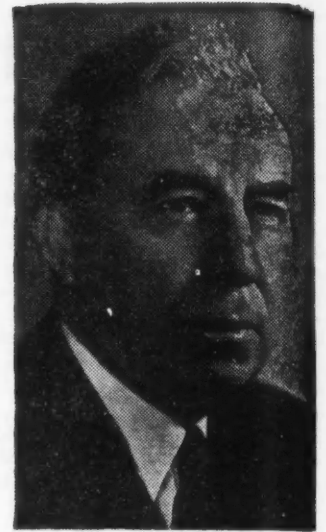
age of fruit with a minimum hauling cost. It is hoped that any money saved because of more efficient processing can be passed on to the grower in the form of better prices for his fruit.

Complete knowledge on the acreages of citrus varieties planted will help county agents, production managers, and research personnel to better advise growers on varieties for new plantings. A knowledge of the trees used each year for resets will help nurseryman to know how many trees they can expect to sell annually.

The Treasury Department allows Florida citrus growers to depreciate a citrus grove in fifty years. Information obtained from this survey showing annual losses due to diseases, and for other reasons, will aid Senator Smathers in his effort to get the Treasury Department to reduce the number of years allowable for the depreciation of a grove to a more realistic figure. Florida Citrus Mutual has been helping to compile evidence on this matter and I am sure that information from the citrus survey will help to gain our growers this much-needed tax advantage.

The wealth of information that has been collected by the citrus survey and tabulated on IBM cards will provide innumerable problems for advanced study by university students. Many of the problems worked on by

KANSAS SENATOR SPEAKS AT BIG MUTUAL MEETING



United States Senator Andrew F. Schoepel of Kansas was the principal speaker at the seventh annual membership meeting of Florida Citrus Mutual held the afternoon of Tuesday, June 21, in Nora Mayo Hall, Florida Citrus Building, Winter Haven.

Senator Schoepel has been most sympathetic to Florida's efforts to expand its export market, particularly in Great Britain. He was twice elected governor of Kansas and is now serving his second term as U. S. Senator from that state.

Florida has developed in hospitality in the last 110 years. When Florida became a state in 1845, the state flag had five horizontal strips in blue, orange, red, white, and green, and displayed the motto, "Let us alone," according to the University of Florida Press book, "Florida Under Five Flags."

Used as ingredients in innumerable cooked and baked dishes, dairy products make other foods taste better and be more nutritious.

these students will result in direct benefits to you, the growers.

The citrus survey should be completed during the 1955-56 fruit season without difficulty. The completion of this survey is extremely important to the citrus industry, and the money invested should not be wasted by allowing the survey to become obsolete. The industry should see that sufficient funds are available to keep the survey current. This could be done with very little cost by bringing the survey up to date every two or three years.

Thirty-Second Annual Meeting Of Growers And Shippers League Of Florida

It is a real pleasure to welcome members and guests to the thirty-second Annual Meeting of the Growers and Shippers League of Florida. The interest manifested by your attendance is indeed inspiring.

The average person interested in the production of citrus or vegetables, if successful, must watch carefully costs of production, cutting expenses wherever possible without impairing quality. Unfortunately the average producer stops at this point in maintaining a competitive position. The lowest cost and finest quality of citrus and vegetables produced cannot be sold competitively and to full advantage with a high wall of transportation costs to give another producing area a lower delivered price to the consumer. Florida is located closer in more of the consuming public than any of its competing areas, and we should strive at all times to make the most of this geographic advantage.

Time will not permit me to more than briefly mention a few of the League's activities during the past year:

The Proposed Increase In Refrigeration Charges

I. C. C. Docket 31342.

Petition was filed by the railroads in August 1953. Since then six hearings have been held, requiring 30 days which does not include travel time. There are, up to date, 295 exhibits and 4,369 pages of testimony, and we have not finished. An examiner's proposed report will be issued to be followed by the filing of exceptions and oral argument. In connection with the Refrigeration Case I want to take this opportunity to thank the Florida Fruit and Vegetable Association, and particularly their President, Andrew Duda, and Manager, their Traffic Division, James Duncan, for their cooperation and help.

Unloading Charges, Fresh Fruits And Vegetables

I & S Docket 5500.

This case dates back to 1947, when the railroads attempted to publish separate charges for unloading fresh fruits and vegetables at Philadelphia and New York. Upon petition for suspension the Commission suspended



ANNUAL ADDRESS BY
S. O. CHASE, JR., PRESIDENT

charges until November 1948, and upon further proceedings the charges were reduced on fresh citrus from \$1.95 per ton to \$1.05 effective 1952. The case was carried thru the lower courts to the Supreme Court, which Court remanded it to the Commission. A three day hearing was held in Washington during February, and a two day hearing in Orlando during April. Briefs were filed June 14, by Attorney Wells.

Application For Motor Truck Operating Authority

Thirteen applications were filed by motor carriers for authority to transport frozen citrus products, nine of which received the support of the League upon recommendation of our Frozen Citrus Concentrate Transportation Advisory Committee. Hearings were held in connection with these applications at Tampa, Florida, during January, Washington in April and May 1954. Briefs were filed with the Interstate Commerce Commissioner in August 1954. A proposed report was submitted June 6, 1955, by the Hearing Examiner W. T. Croft. The Examiner has recognized the argu-

ments presented, particularly with regard to giving any carrier who receives authority statewide origin authority, so that all processing plants will receive equal service.

Lease And Interchange Of Motor Carrier Equipment Docket MC-43

This is another case dating back to 1947, that has been constantly before us. Further hearings were held before the Interstate Commerce Commission June 14, through June 30, 1954. Reply to the exceptions was filed March 15, and oral argument was held before the Commission April 7, 1955.

To handle such cases not only many hours of work are necessary, but it is equally important to have experience and skill. Unless you have attended at least one hearing you cannot fully appreciate how experience and skill is really used to the best advantage, because you have not heard and seen a (stuttering, squirming) witness being examined by our attorney Maxwell W. Wells. The League is indeed fortunate, and I sincerely hope Max will be handling our legal affairs for many more years.

Highways are becoming more important every day to the transportation of agriculture. The League through the Florida Highway Users Conference worked with the Florida P. A. R. Committee on a two-point program. Under reorganization of the State Road Department and as passed the "Florida Highway Code of 1955" will:

- Make the terms of road board members coincide with the governor's, but the board selects its chairman annually.
- Provide an Executive Director and State Highway Engineer (removable only for cause after a hearing) to serve under the chairman.
- Establish a merit system for employees.
- Launch a management survey of the Department.
- Put the Department's budget under control of the cabinet.
- Establish an Auditor in the Department.
- Set up a contract control form-

(Continued on Page 12)

Organic Farming With Chemical Fertilizers

(Concluded From Last Issue)

With respect to the labor required for organic farming, Lady Eve Balfour, one of the most ardent exponents of organic farming in England, estimates that in that country one extra farm laborer would be required on every one hundred acres if the organic system which she is advocating were put into effect! Can you imagine trying to put such a program across in this country with the constantly diminishing labor forces on our farms? I do not see how we can escape the conclusion that while the organic farmers have developed a philosophy which is good for some back-yard gardeners, and for even some areas which cannot yet get access to commercial fertilizers, the adoption in this country of the practices which they advocate would be a very serious step backward, and would result in a declining agriculture and a serious lowering of our standard of living, to say nothing of its effect on our industrial economy, especially the fertilizer business.

At the other extreme of the spectrum, we have the farmer I shall refer to as the "continuous cropper." He feels that rotations and diversified agriculture, the virtues of which were described above, were all right in the past but are neither necessary nor desirable now that we have chemical fertilizers in abundance at a reasonable price. He points out that this is an age of specialization, that he has a farm that is well adapted to corn — or potatoes — or grass or tobacco — or cotton, depending upon the section of the country in which he is living. He states "I like to grow corn — or cotton — or grass. If I use plenty of fertilizer, I can grow most profitable crop every year, year after year. I can plant my entire farm to do it. I can make money faster that way.

I have no doubt that if just a few farmers would do just that they would make more money per year for a few years. But I wonder what would happen if all the farmers in the United States to whom the argument applies just as effectively, decided to follow such a program. As I see it, it could have two possible effects: If allowed to spread rapidly with the aid of controlled prices but

— By —

RICHARD BRADFIELD

without acreage restrictions, the conditions which, of course, our friend would recommend, it would soon result in surpluses way beyond anything we have yet conceived. If, on the other hand, prices were not supported, it would soon result in ruinously low prices. If the Government supports prices, it will, sooner or later, have to restrict acreages. And to use his land efficiently under such circumstances, the farmer will be forced to diversify. Since some diversification, then, is forced upon him, should it not follow the pattern slowly evolved through the ages which will best maintain soil organic matter, improve soil structure, increase yields per acre, increase production of labor per hour, and increase production per dollar of investment? Only in that way will the interests of all concerned be safeguarded. I am sure the wiser course for us to follow lies between these two extremes.

We should avoid the limitations which the philosophy of the organic school imposes upon us, on the one side, and the enticements of larger immediate profits promised by the continuous culture of the most profitable crops, on the other, and try to steer an intermediate course through the safer waters between these extremes.

Organic farming with chemical fertilizers is much more feasible than it is without them. As we pointed out above, a well-designed system of organic farming can be a fairly efficient way of maintaining soil fertility under favorable circumstances. Since one can never return to the soil more than he takes from it in this system, the best one can expect to do is to hold his own. One can, of course, build up the fertility of the soil in his garden by hauling it in from the back fields or from his neighbor's farm. This is not building up fertility; it is merely transferring it from one spot to another. Because of the bulk of organic matter, we will not be able, by this technique, to make any rapid shifts in fertility

over any large areas, or in areas very far away from the source of supply of the organics. For most farmers, the only economical way to get more organic matter in their soil is to grow more organic matter on their own farms. Larger crops will mean more roots, more stalks and stubble, more feed for livestock, and hence more manure to return to the soil. The cheapest way to grow these larger crops is by more liberal fertilization and by the use of good soil building rotations in which the soil is so handled that maximum efficiency is obtained from the fertilizers. This will require the best available seed, the best adapted cultivation practices, the most efficient use of all organic residues. Organic farming with chemical fertilizers will result in even higher yields per acre and even more organic matter in our more productive soils in the Corn Belt, and in many other sections of the country. It will result in higher production per hour of farm labor. When we need to expand agriculture production to take care of our rapidly expanding population, organic farming with chemical fertilizers will make it feasible to expand our agriculture into areas of abandoned farm land, and, when necessary, even into areas of very poor soil resources which have the other necessary conditions for good crop production, such as a good water supply and a favorable climate.

What would the agriculture of Florida be without chemical fertilizers? Can you conceive of a profitable agriculture in a state with soil resources like much of those of Florida being built up with organic manures alone? Where would these organic materials come from? The wonderful contributions that Florida is now making to the Nation's food basket are a good example to the world of what can be done with soils which are very low in natural fertility but very responsive to good management based primarily on liberal fertilization.

I visited, this last September, one of the finest farming areas in the world. It has been farmed for over two thousand years. In spite of this long period of cropping, the average yield of rice obtained are the highest of any area of comparable size in the world. The better farmers are consistently harvesting from 150 to 175

bushels of corn per acre. That area is the Po Valley of northern Italy. I visited it to try to learn the secrets back of these wonderful yields. I did not find anything which was strikingly new. I did find an excellent example of what can be done when we put into practice all that we know about good soil and crop management. The area has a good climate with favorable sunlight and favorable temperatures for the corn crop. The soil is deep and well drained. The farmers practice and have practiced for centuries a good rotation, a common one being corn, wheat, and 2 to 3 years of ladino clover or alfalfa. The clover and alfalfa are seldom pastured, but are fed to the dairy cattle in the barn or feed lot. The manure is carefully managed. None of it is wasted. Weeds are carefully controlled. The corn fields had about 26,000 stalks per acre, a stand density found best by some of our best farmers for highly productive soils. They used the best adapted hybrid seed they could obtain. They had a plentiful supply of water, which was applied generously whenever needed. In addition to the long lay of legume sod and the heavy applications of manure, 15 tons per acre, they used commercial fertilizers liberally, 1200 pounds of 10-10-10 per acre on the corn crop. This is a good example of what I consider organic farming with chemical fertilizers at its best; best for the soil, best for the crop, best for the farmer, best for the long-time interests of the fertilizer dealer, best for today, and best for tomorrow.

REFERENCES

1. Bizzell, J. A., and Leland, E. W. Sodium Nitrate as a Supplement to Farm Manure and Red Clover. Cornell Agricultural Experiment Station Bulletin 817. 1945.
2. Klemme, A. W., and Coleman, O. T. Evaluating Annual Changes in Soil Productivity. Missouri Agricultural Experiment Station Bulletin 405. 1939.
3. Miller, M. F. Studies in Soil Nitrogen and Organic Matter Maintenance. Missouri Agricultural Experiment Station Bulletin 409. 1947.
4. Odland, T. E., Bell, R. S., and Smith, J. B. The Influence of Crop Plants on Those Which Follow. V. Rhode Island Agriculture Experiment Station Bulletin 309. 1950.
5. Ohio Experiments in Agronomy, Handbook of. Ohio Agricultural Experiment Station Book Series B-1 1951.
6. Russell, M. B., Klute, A., and Jacob, W. C. Further Studies on the Effect of Long Time Organic Matter

Additions on the Physical Properties of Sassafras Silt Loam. Soil Science Proceedings, Vol. 16, p. 156-159, 1952.

7. Salter, Robert M., Lewis, R. D., and Slipper, J. A. Our Heritage the Soil. Ohio Agricultural Extension Bulletin 175, 3rd Revised Edition. 1941.

8. Salter, Robert M., and Schollberger, C. J. Farm Manure. Ohio Agricultural Experiment Station Bulletin 605. 1939.

9. Weindling, R. Microbial Antagonism and Disease Control. Soil Science 61: 23-30. 1946.

FLORIDA CITRUS IS FEATURED AT APPLE CONVENTION

The Florida citrus industry has announced plans for its participation in the International Apple Association's convention in Detroit beginning August 15th. Highlight of activities for the Florida delegation will be the traditional "Florida Day" event to take place on August 17th.

A special industry committee appointed by the Florida Citrus Commission and Florida Citrus Mutual, co-sponsors for "Florida Day," announced recently that Florida's popular Governor LeRoy Collins has been asked to head the Sunshine

delegation as guest speaker.


The beautiful Florida Citrus Queen, Miss Sally Ardrey, will also join the Florida delegation as a good-will ambassador, and official hostess to the estimated 100 conventioners expected to attend the "Florida Day" luncheon at Detroit's Statler Hotel.

If present plans mature, some 80 members of the Florida delegation will fly from Orlando, to Detroit on August 14th aboard an Eastern Airlines "Citrus Special." Captain of the special flight will be one of Eastern's several veteran pilots who are also Florida citrus grove owners. The plane will be decorated with Florida citrus material, a special citrus menu served, and hostesses aboard the ship will join the Florida delegation to serve fresh citrus juice during the convention.

The industry committee responsible for overall planning for "Florida Day" is composed of J. J. Parrish, Jr., Titusville; Key Scales, Jr., Weirsdale; H. N. Sorrells, Arcadia; John T. Lesley, Tampa; Fred S. Johnston, Tampa; Ben Hill Griffin, Jr., Avon Park; R. V. Phillips, Haines City; J. D. Wright, Jr., Sanford; Ralph Meitin, Zellwood; J. C. Strickland, Lakeland; M. K. Stevenson, Waverly; G. B. Hurlburt, Mt. Dora.

Air-Conditioned and Heated

Kimberly



Member the AAA Diners' Club

INFORMAL LUXURY IS THE KEYNOTE

15-10

DIRECTLY ON THE OCEAN AT 150TH STREET MIAMI BEACH

- 124 Luxuriously furnished rooms
- 400 feet of Private Beach
- Salt Water Swimming Pool • Cabanas
- Free Parking on Premises
- Cocktail Lounge & Restaurant
- Entertainment Solarium

\$2.50 per person double occ.

MOTORISTS . . . You'll enjoy our Motel Accommodations

SPECIAL MONTHLY RATES

Write today for full information and reservations.

---TEAR OUT AND MAIL NOW!--

Hotel Kimberly
158th St. and Ocean
Miami Beach, Florida

Please send me your FREE brochure and full details

NAME.....

Address.....

THIRTY-SECOND ANNUAL MEETING OF GROWERS AND SHIPPERS LEAGUE (Continued From Page 9)

ula to prevent financial deficits.

- * Penalize delinquent contractors.
- * Classify highways into four systems.
- * Give U. S. numbered roads top priority.
- * Require sufficiency ratings. (Build roads according to need).
- * Transfer welcome stations to Advertising Committee.
- * Recodify highway laws, and repeal obsolete statutes.
- * Funds available to the Department or any County from any gasoline tax revenues shall not be used for any non-highway purposes.

Some progress was made on our other objective of returning to highway improvement that part of the auto license tag money that is not earmarked by the constitution for schools. Four bills were introduced to allocate the balance of this motor tax to road purposes, but none passed due to the plight of the General Fund which now receives the tag surplus.

However, two possible first steps in restoring the tag revenue to highway purposes were taken by the legislature. The Florida Citizens Tax Council was created to study the entire tax structure and to make recommendations to the 1957 session. The governor and many legislative leaders who felt this year's budget condition would preclude putting the tag money on roads said that 1957 would be the best time to do it, during a general readjustment of funds and taxes. The other possibility is the Constitutional Revision Commission which could write into the new constitution a requirement that the tag surplus and the motor fuel taxes be used solely for road and street purposes, as 25 states have done.

We have three proposals for rate adjustments before the railroads, fresh citrus, frozen citrus products, and fresh vegetables. The League is grateful to Don Harper, Chairman of the Vegetable Traffic Committee, for his work in connection with this proposal, also to Chase & Co. for the loan of Don and the necessary travel expenses for placing the vegetable proposal before receivers in the markets and connecting rail lines. We will hear more about this proposal shortly.

To our Secretary-Manager, Gordon Stedman I want to express my thanks and appreciation for the excellent job of directing and coordinating.

Our Traffic Manager, Tom Halle, and Rate Analyst Wray Turner, have worked smoothly and efficiently at all times. Mrs. Hunter, as for many previous years, has given unstintingly, exhibiting a wonderful spirit of cooperation and loyalty. Miss Lawler has assisted faithfully not only in helping prepare volumes of statistical exhibits but has worked industriously in connection with the PAR Committee for Better Roads.

To General Manager Bob Evans, and the entire Citrus Commission, I extend thanks for their understanding and helpful cooperation. To Chairman of the Transportation Advisory Council Paul Sarrett, to W. A. Stebins, Chairman of the Frozen Citrus Concentrate Committee, to President R. C. Lewis and Secretary Rathbun I extend thanks for your genuine interest and cooperation.

MUTUAL OFFERS REWARD FOR THEFT OF CITRUS TREES

Acting to stop a veritable rash of thefts of young citrus trees, Florida Citrus Mutual has extended its standing reward of \$100 to cover such cases as well as those involving fruit.

Mutual's general manager, Robert W. Rutledge, announced the extension of the reward after receiving reports from grower members that stealing of young trees just set out in groves was becoming a serious problem, particularly around the Dade City area, although scattered reports had been received from many other sections.

"A newly set young citrus tree represents an investment of close to \$5 in most instances, Rutledge pointed out. "Mutual's \$100 reward for the capture and conviction of persons for fruit stealing is credited with keeping this kind of theft down to a minimum, and we are glad to make the reward apply also to cases involving theft of young trees."

The reward applies, of course, only where the theft is from the grove of a Mutual member.

Young trees purchased from a nursery for establishing a new grove or to replace unproductive trees in an existing grove cost from \$1.50 to \$2, depending on the size of the stalk. Transportation, actual setting of the tree and necessary attention until established runs the total investment on a new young tree to around \$5, experienced citrus men say.

Mutual has paid the \$100 reward almost a dozen times during the six seasons it has been in force. Where

more than one person took part in the arrest and conviction of a fruit thief, the reward has been divided.

"We are glad to make Mutual's reward cover young trees and give our grower members this added protection," Rutledge said. "This is just one more of the many services we provide our members which are not available to non-members."

FUTURE FARMERS OF AMERICA PRESENT OUTSTANDING AWARDS

Three outstanding young men of Florida received special awards from the State Department of Agriculture recently at the annual convention of the Florida Association of Future Farmers of America at Daytona Beach.

Nathan Mayo, veteran Commissioner of Agriculture, presented J. Lester Poucher, Jacksonville; Doyle Conner, Starke; and William D. Gunter, Live Oak; with FFA Achievement Plaques before the assembled delegates from FFA Chapters throughout the State. The awards were presented in honor of the past accomplishments and national leadership of the three men in FFA work.

All three award winners held the position of national president of FFA. Poucher, formerly of Largo, but now associated with the Wilson & Toomer Fertilizer Company, Jacksonville, was leader in 1937-38; Conner, a cattleman and legislator from Bradford County, was top man in 1943-49; and Gunter, a student at the University of Florida, is the current president of the farm youth organization. The three men also hold the American Farmer Degree, presented to Poucher in 1936, to Conner in 1943, and to Gunter in 1954.

An estimated 300 delegates from FFA Chapters in Florida attended the 27th annual assembly. Major programs of the week-long meeting included presentation of awards by various sponsoring organizations, presentation of Honorary State Farmer Degrees, selection of the Star Farmer, election of officers for next year, selection of FFA Sweetheart, and election and initiation of State Farmer Degree candidates.

College students in Latin America generally do not have the right to vote because of their age; but in many countries they exercise an influence out of all proportion to their numbers, according to the University of Florida Press book, "The caribbean: Contemporary Trends."

1954 Florida Annual Crop Summary

The annual report of the United States Department of Agriculture Marketing Service at Orlando recently issued shows some interesting figures on Florida's agricultural production and its steadily increasing volume and value. The figures on fruits and nuts will be of particular interest to readers of this publication. They are submitted below.

in the State in 1954. This represents a decrease of nearly 50,000 acres and 62,000 tons of production. A larger production of hay and tobacco failed to offset smaller crops of corn, cotton, oats, peanuts and sweet potatoes. Prices in general were a little higher and the total valuation of 1954 field crops was close to \$67 million, — \$3 million above 1953.

C R O P	PRODUCTION		SEASON AVERAGE PRICE a/		VALUE OF PRODUCTION b/		Unit
	1952-53 Thousands	1953-54 Thousands	1952-53 Dollars	1953-54 Dollars	1952-53 Thousands	1953-54 Thousands	
Avocados, actual tons	10,600	10,200	108.00	110.00	1,145	1,122	Ton
ALL Citrus	109,920	138,670	1.49	1.41	164,213	193,487	Box
Grapefruit, All	32,500	42,000	1.05	.79	34,225	32,105	Box
Seedless	17,100	21,900	1.29	1.00	22,059	21,600	Box
Other	15,400	20,100	.79	.55	12,166	10,505	Box
Oranges, All	72,200	91,300	1.65	1.64	119,239	149,647	Box
Early and Midseason	42,300	60,200	1.49	1.45	63,027	72,790	Box
Valencias	29,900	41,100	1.88	1.87	56,212	76,857	Box
Tangerines	4,900	5,000	1.92	2.13	9,408	9,585	Box
Limes	320	370	4.19	5.81	1,341	2,150	Box
Pears	87	90	1.00	1.15	87	104	Bu.
Peaches	18	12	2.45	2.50	44	31	Bu.
Pecans, All	7,300	3,000	.146	.304	1,069	912	Lb.
Improved	4,000	1,800	.160	.340	640	612	Lb.
Seedlings	3,300	1,200	.130	.250	429	300	Lb.
Pineapples	28	25	6.00	5.40	168	135	Box
Tung Nuts, actual tons	28,400	18,000	65.00	57.00	1,846	1,026	Box
TOTAL ABOVE CROPS	Tons 4,828.5	Tons 6,061.4			168,572	196,817	

a.—Citrus price equivalent packing house or factory door, all methods of sales.

b.—Value is for marketing season or crop year and should not be confused with calendar year income.

Paced by a record 138 million box citrus crop in 1954, crop production in Florida for the year excelled all records. The total production of 8,556,700 tons of food, feed and fiber

FRUIT AND NUTS — A 29 million box increase in the citrus crop in 1953-54 boosted the total production of Florida's fruits and nuts from 4,828,500 tons in 1952-53 to 6,061,400.

SUMMARY	YEAR	ACREAGE		PRODUCTION In Tons	VALUE OF PRODUCTION a/ b/
		Planted	Harvested		
		Thousands	Thousands	Thousands	Thousand Dollars
Total Field Crops	1954	1318.9	932.0	700.1	66,739
	1953	1347.8	981.8	762.7	63,614
Total Vegetables	1954	406.6	379.2	1795.2	186,405
	1953	406.7	375.4	1682.7	141,814
Total Fruits and Nuts	1954	664.2	578.8	6061.4	196,817
	1953	686.8	552.9	4828.5	168,572
TOTAL ALL CROPS	1954	2389.7	1889.5	8556.7	399,961
	1953	2390.8	1910.1	7273.9	373,900

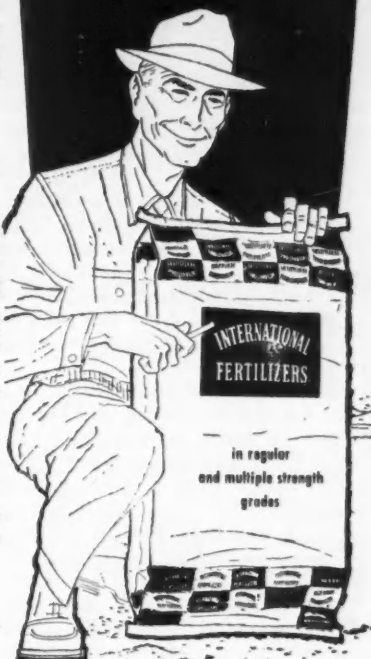
in 1953-54 compares with 7,273,900 tons for the year before and a previous record of 7,566,900 tons in 1951-52. The State's 39 principal crops were grown on 2,389,700 acres in 1953-54, practically the same as 1952-53. The value of production of crops produced in 1953-54 approximated \$400 million — 7 percent greater than the 1952-53 valuation of \$374 million. Citrus fruit and tobacco accounted for most of the increase.

FIELD CROPS — There were 700,100 tons of food, feed and fiber produced on 932,000 acres of field crops

Smaller crops of avocados, peaches, pecans, and tung nuts were produced in 1954. While the per unit price of citrus was lower in 1954, the large volume increased the all fruit valuation to nearly \$197 million, — nearly \$30 million above a year ago.

VEGETABLES — Florida growers planted, harvested and sold another near record crop of vegetables in 1953-54 when 406,600 acres were planted, 379,200 acres harvested, yielding 1,795,200 tons valued at \$186,405,000. While the acreage harvested (Continued On Page 18)

THIS MAN "SELLS" CITRUS PROFITS



He's your International Fertilizer Field Representative. He knows you will get profitable results when he recommends International Fertilizers. He makes sure you get the exact grades you need—and he often urges you to make heavier applications, because that's one of the most important factors in the profitable production of citrus.

You get big returns for every dollar you invest in International Fertilizers because they give you a correct balance of plant foods plus special ingredients such as soluble sulfate of magnesium and sulfate of potash and the trace elements needed for maximum production of quality citrus in Florida. International Fertilizers help keep your trees in good condition... better able to withstand cold, disease and dry weather and capable of producing fruit with good color, fine flavor and more solids.

So, for Satisfaction at Harvest Time, call your International Fertilizer Field Representative and Dealer... they "sell" citrus profits.

plant food division
**INTERNATIONAL MINERALS
& CHEMICAL CORPORATION**

General Offices: 20 North Wacker Drive, Chicago 6
Florida District Sales Office: Mulberry Fertilizer
Manufacturing Plants: Mulberry and Jacksonville

Discovery That Fungi Responds To Light May Aid Research

Although molds and other fungi usually are thought to have little need for light, some of them actually depend on light as a starter for certain life processes, the U. S. Department of Agriculture reports.

This discovery by scientists of USDA's Agricultural Research Service is valuable for better understanding of fungous diseases of plants, and it may also open up a new approach to study of light's effects on various crops.

Unlike higher forms of plant life, fungi contain no chlorophyll, the substance that enables green plants (through photosynthesis) to use sunlight for growth. This lack of chlorophyll was the basis for the general assumption that fungi did not need light to grow.

However, Drs. Wilbur D. McClellan, Harry A. Borthwick, and Sterling B. Hendricks found in experiments at Beltsville, Md., that eight of 13 fungi they tested showed definite light responses. The organisms seemed especially dependent on light in starting spore formation, the process by which fungi multiply.

The scientists believe that this tripping action of light on the spore-forming mechanism of fungi is similar to light's effect on germination, flowering, and fruiting of green plants, which was first formulated as a natural law by other USDA investigators some 30 years ago. Since fungi do not need light for photosynthesis, it is possible that they can

serve even better than green plants as tools for studying certain reactions involved in plant response to light.

In the recent experiments at Beltsville, some fungi exposed to light of certain kinds and intensities formed spores, while others did not. In some fungi, the light could be so modified as to affect the kind and depth of color of the growing organisms. With others, light affected the formation of small spore-bearing bodies or, in one case, stimulated formation of groups of thick-walled cells.

The light tests were made in a controlled-temperature room. The fungi were grown in test tubes, either in the dark or with light from incandescent-filament or fluorescent lamps. They were later subjected to various kinds of light, including unfiltered light from incandescent and fluorescent lamps, far-red light (wave-length greater than 7,000 angstroms) isolated by appropriate filters from the incandescent lamp, and blue and red lights similarly isolated from the fluorescent light source.



LYCHEE

NURSERY STOCK

**AIR LAYERS
FROM OUR OWN
BREWSTER
TREES**

16"-24" Sizes and Larger
Single Plants from \$3.50

**Substantial 'Sliding
Scale' Discount on
quantity purchases
for Grove plantings**

You are cordially invited
to visit our groves.

Your West Coast Head
for all Subtropical
Fruit Trees.

PALMER NURSERIES

OSPREY, FLORIDA

J. H. Popham, Jr., Mgr.

MEMBER
FLORIDA LYCHEE GROWERS ASSOCIATION
FLORIDA NURSERYMEN AND GROWERS ASSOCIATION
AMERICAN ASSOCIATION OF NURSERYMEN

Complete CITRUS GROVE MANAGEMENT

The Very Best of Service to Grove
Owners of either Large or
Small Groves

Servicing The
Polk County Area

**LOGAN & RICKBORN
INC.**

LAKE LAND, FLORIDA

2609 Orleans Avenue — Call 6-0501

EMJEO

(80/82% MAGNESIUM SULPHATE)

Many years a favorite source of soluble magnesia for Florida soils. Used extensively in fertilizer mixtures for citrus crops and vegetables. Especially useful and economical for direct application where only magnesia is required.

Florida growers now consider magnesium a primary plant food in the same category with nitrogen, phosphorus and potash.

The recommendations of the Florida Citrus Experiment Station at Lake Alfred, published in January 1954, stress the need for large application of magnesium for Citrus in soluble form and state that it is usually applied as a Sulphate.

Ask your fertilizer manufacturer for EMJEO, long a dependable source of this key plant food.

BERKSHIRE CHEMICALS, INC.

420 Lexington Avenue

New York 17, N. Y.

Magnesium

For a Full Harvest

PREVATT REELECTED PRESIDENT FLORIDA CITRUS EXCHANGE

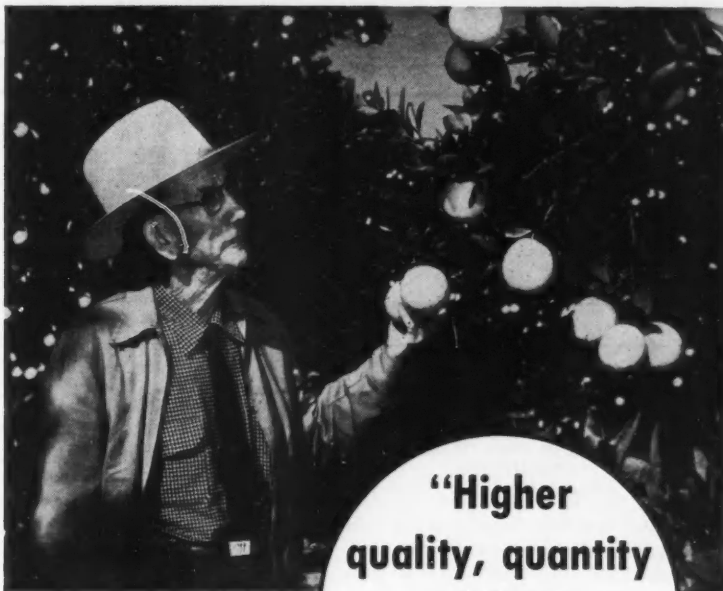


J. B. Prevatt of Tavares, was re-elected to serve his fifth consecutive term as president and chairman of the board of the Florida Citrus Exchange and its selling and promotion subsidiary, Seald-Sweet Sales, Inc.

At the 46th annual membership meeting June 9 in the Citrus Exchange Building Tampa, all officers were reelected and directors reseated for another year. Renamed to serve with Prevatt were P. C. Peters of Winter Garden, first vice president; John L. Olsen of Haines City, second vice president; C. G. Wilhoit of Vero Beach, third vice president; and Ford W. Moody of Palm Harbor, fourth vice president.

SEVENTY-TWO FILMS ON FRESH FRUITS AND VEGETABLES

A new catalog of 72 motion picture films and film strips, each dealing with some phase of the fresh fruit and vegetable industry, is available from the United Fresh Fruit & Vegetable Association, 777 14th Street, N. W., Washington 5, D. C., at \$1. This is the second edition and contains many new titles not included in the original report. The list cites 60 motion pictures and 12 film strips. The subjects cover a wide range, and some will be found that will fit into a program for any trade or consumer group. Many are in color and some are veritable "travelogs", combining colorful action with the practical operation of the fresh produce industry.



Wesley J. Mann, Frostproof, pioneer Polk County citrus grower, inspects his d/p DOLOMITE-conditioned crop.

**"Higher
quality, quantity
and better
solids content"**

... says Wesley J. Mann, veteran
Frostproof citrus grower

Mr. Mann is thoroughly convinced that d/p DOLOMITE pays off heavily in greater citrus profits.

"Since I have been using d/p DOLOMITE, which has been more than 15 years, I've been getting finer quality, greater yield, better solids content and earlier maturity," he says.

"Some years ago I stopped using d/p DOLOMITE for awhile. I soon found my groves deteriorating and yield lighter.

"For the past 3 years I have been using about one ton per acre and have been able to observe grove improvement and better, bigger crops.

"I've found the free soil laboratory and fine field service of d/p DOLOMITE most helpful to me."

Use d/p DOLOMITE on YOUR groves and get the same benefits that have made Mr. Mann and many others ardent enthusiasts for d/p DOLOMITE. d/p DOLOMITE restores acid-alkali soil balance and supplies the calcium and magnesium essential to healthy plant and animal growth.

Dolomite Products has a complete line of liming materials—Dolomitic and Hi-Calcium Limestone bagged and bulk. Also dried Hi-Calcium Limestone bagged and bulk.

For information or arrangements to have a d/p DOLOMITE field representative call on you, write, wire or phone the address below—or see your local spreader.



DOLOMITE

PRODUCTS, INC.

HALL BUILDING, P.O. BOX 578, OCALA, FLORIDA

Discovery That Fungi Responds To Light May Aid Research

Although molds and other fungi usually are thought to have little need for light, some of them actually depend on light as a starter for certain life processes, the U. S. Department of Agriculture reports.

This discovery by scientists of USDA's Agricultural Research Service is valuable for better understanding of fungous diseases of plants, and it may also open up a new approach to study of light's effects on various crops.

Unlike higher forms of plant life, fungi contain no chlorophyll, the substance that enables green plants (through photosynthesis) to use sunlight for growth. This lack of chlorophyll was the basis for the general assumption that fungi did not need light to grow.

However, Drs. Wilbur D. McClellan, Harry A. Borthwick, and Sterling B. Hendricks found in experiments at Beltsville, Md., that eight of 13 fungi they tested showed definite light responses. The organisms seemed especially dependent on light in starting spore formation, the process by which fungi multiply.

The scientists believe that this tripping action of light on the spore-forming mechanism of fungi is similar to light's effect on germination, flowering, and fruiting of green plants, which was first formulated as a natural law by other USDA investigators some 30 years ago. Since fungi do not need light for photosynthesis, it is possible that they can

serve even better than green plants as tools for studying certain reactions involved in plant response to light.

In the recent experiments at Beltsville, some fungi exposed to light of certain kinds and intensities formed spores, while others did not. In some fungi, the light could be so modified as to affect the kind and depth of color of the growing organisms. With others, light affected the formation of small spore-bearing bodies or, in one case, stimulated formation of groups of thick-walled cells.

The light tests were made in a controlled-temperature room. The fungi were grown in test tubes, either in the dark or with light from incandescent-filament or fluorescent lamps. They were later subjected to various kinds of light, including unfiltered light from incandescent and fluorescent lamps, far-red light (wave-length greater than 7,000 angstroms) isolated by appropriate filters from the incandescent lamp, and blue and red lights similarly isolated from the fluorescent light source.



LYCHEE

NURSERY STOCK

**AIR LAYERS
FROM OUR OWN
BREWSTER
TREES**

16"-24" Sizes and Larger
Single Plants from \$3.50

**Substantial 'Sliding
Scale' Discount on
quantity purchases
for Grove plantings**

You are cordially invited
to visit our groves.

Your West Coast Head,
for all Subtropical
Fruit Trees.

PALMER NURSERIES

OSPREY, FLORIDA

I. H. Popham, Jr., Mgr.

MEMBER
FLORIDA LYCHEE GROWERS' ASSOCIATION
FLORIDA NURSERY AND GROWERS ASSOCIATION
AMERICAN ASSOCIATION OF NURSERYMEN

Complete CITRUS GROVE MANAGEMENT

The Very Best of Service to Grove
Owners of either Large or
Small Groves

Servicing The
Polk County Area

**LOGAN & RICKBORN
INC.**

LAKELAND, FLORIDA

2609 Orleans Avenue — Call 6-0801

EMJEO

(80/82% MAGNESIUM SULPHATE)

Many years a favorite source of soluble magnesia for Florida soils. Used extensively in fertilizer mixtures for citrus crops and vegetables. Especially useful and economical for direct application where only magnesia is required.

Florida growers now consider magnesium a primary plant food in the same category with nitrogen, phosphorus and potash.

The recommendations of the Florida Citrus Experiment Station at Lake Alfred, published in January 1954, stress the need for large application of magnesium for Citrus in soluble form and state that it is usually applied as a Sulphate.

Ask your fertilizer manufacturer for EMJEO, long a dependable source of this key plant food.

BERKSHIRE CHEMICALS, INC.

420 Lexington Avenue

New York 17, N. Y.

Magnesium

For a Full Harvest

PREVATT REELECTED PRESIDENT FLORIDA CITRUS EXCHANGE

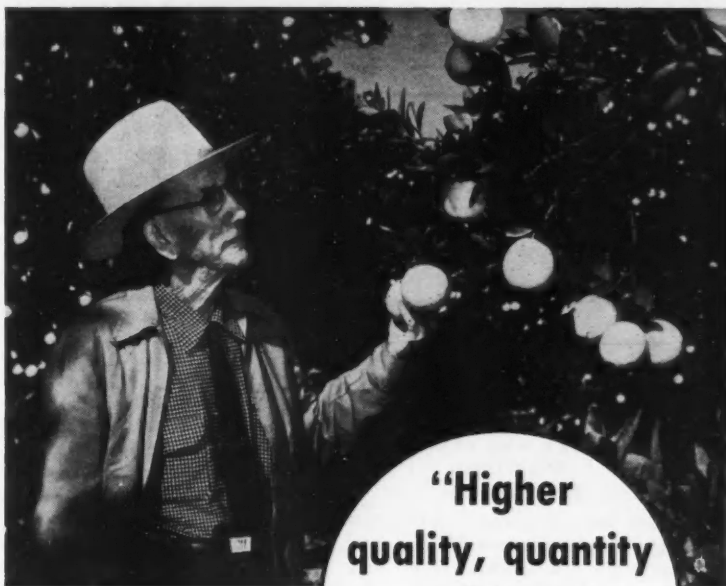


J. B. Prevatt of Tavares, was re-elected to serve his fifth consecutive term as president and chairman of the board of the Florida Citrus Exchange and its selling and promotion subsidiary, Seald-Sweet Sales, Inc.

At the 46th annual membership meeting June 9 in the Citrus Exchange Building Tampa, all officers were reelected and directors reseated for another year. Renamed to serve with Prevatt were P. C. Peters of Winter Garden, first vice president; John L. Olsen of Haines City, second vice president; C. G. Wilhoit of Vero Beach, third vice president; and Ford W. Moody of Palm Harbor, fourth vice president.

SEVENTY-TWO FILMS ON FRESH FRUITS AND VEGETABLES

A new catalog of 72 motion picture films and film strips, each dealing with some phase of the fresh fruit and vegetable industry, is available from the United Fresh Fruit & Vegetable Association, 777 14th Street, N. W., Washington 5, D. C., at \$1. This is the second edition and contains many new titles not included in the original report. The list cites 60 motion pictures and 12 film strips. The subjects cover a wide range, and some will be found that will fit into a program for any trade or consumer group. Many are in color and some are veritable "travelogs", combining colorful action with the practical operation of the fresh produce industry.



Wesley J. Mann, Frostproof, pioneer Polk County citrus grower, inspects his d/p DOLOMITE-conditioned crop.

**"Higher
quality, quantity
and better
solids content"**

...says Wesley J. Mann, veteran
Frostproof citrus grower

Mr. Mann is thoroughly convinced that d/p DOLOMITE pays off heavily in greater citrus profits.

"Since I have been using d/p DOLOMITE, which has been more than 15 years, I've been getting finer quality, greater yield, better solids content and earlier maturity," he says.

"Some years ago I stopped using d/p DOLOMITE for awhile. I soon found my groves deteriorating and yield lighter.

"For the past 3 years I have been using about one ton per acre and have been able to observe grove improvement and better, bigger crops.

"I've found the free soil laboratory and fine field service of d/p DOLOMITE most helpful to me."

Use d/p DOLOMITE on YOUR groves and get the same benefits that have made Mr. Mann and many others ardent enthusiasts for d/p DOLOMITE. d/p DOLOMITE restores acid-alkali soil balance and supplies the calcium and magnesium essential to healthy plant and animal growth.

Dolomite Products has a complete line of liming materials — Dolomitic and Hi-Calcium Limestone bagged and bulk. Also dried Hi-Calcium Limestone bagged and bulk.

For information or arrangements to have a d/p DOLOMITE field representative call on you, write, wire or phone the address below—or see your local spreader.



DOLOMITE

PRODUCTS, INC.

HALL BUILDING, P. O. BOX 578, OCALA, FLORIDA

ADVERTISEMENT — LYONS FERTILIZER COMPANY

The LYONIZER

COMPILED BY THE LYONS FERTILIZER COMPANY

Reports Of Our Field Men . . .

SOUTH POLK, HIGHLANDS, HARDEE AND DESOTO COUNTIES

C. R. Wingfield

We had rains over most of this area on the weekend of June 11th. and 12th. that brought relief from the long drought. It was noted that the southern parts of this section were more fortunate with up to 4½ inches while other sections ranged from ½ to 2 inches. Those receiving the smaller amounts found it necessary to continue irrigation. Where groves have been irrigated and received a good rain the trees are responding very nicely and appears there will be a lot of late bloom.

The new crop appears to be much lighter than this last season but of course a late bloom could change the picture. Older trees are very light while younger trees (5 to 7 years old) have a good normal crop. There could be much discussion as to why, but late cold winds and lack of favorable moisture condition could be factors. With a few exceptions the summer fertilizer applications are completed and growers have begun the summer spray programs. Early June found Purple Scale, Red Scale and Purple Mite in the High Range again and timing is very important for its control. Rust Mite is very active also.

SOUTHWEST FLORIDA

Eaves Allison

The seasons drought in this area was broken by the coming of the rains very soon after the middle of June. There was some loss sustained among the young trees, and some "sick" citrus specimens of all ages left this vale of tears during the long dry spell. They will all be replaced in due time, and our next worry may well

be too much water. Who knows? Nothin aint never just right!

A fair June bloom is beginning to show up on many of those trees which lost most of their normal bloom in the late unseasonable cold of last spring. It looks like a lighter volume for next year on a good many groves down this way.

Lots of that good Lyons fertilizer is going out now, following the first rains, and the growers are ready to let their cover crops go, and let their fertilizer do the work for a spell.

New vegetable land is being cleared and old land planted to cover crops. Glad bulbs are mostly dug, cleaned and put in cold storage. Pasture lands will now be responding to the welcome rains, with a corresponding up-grading of their cattle, which were beginning to get 'ganted.'

HIGHLANDS AND POLK

J. K. Enzor, Jr. & R. E. Lassiter, Jr.

J. K. Enzor, Jr. & R. E. Lassiter, Jr.

Up until the middle of the month when the northern area of Polk County received two to three inches of rain there were many irrigation units going. There is still a large area in the southern end of the county that is dry.

We have observed a fairly large build-up of rust mites in many groves in the last week to ten days. Growers should be checking their groves closely for this mite.

Purple scale has become very serious in many groves and since the rain a lot of oil has been used. It should be noted that where oil is applied on heavy infestations of rust mite the groves should be checked closely following the oil spray for a reinfestation of rust mite.

Most growers have completed their summer fertilizer application

and the main concern now is young trees. Young trees should receive fertilizer applications throughout the summer months in order to assure the maximum growth.

EAST HILLSBOROUGH AND PASCO COUNTIES

E. A. McCartney

We finally got spotty rain in this section but not enough as yet to do much good. Some groves are in a state of bad wilt and this has been the longest dry period in my 18 years in this territory.

There are only a few Valencias left and our summer application of fertilizer is about over and the spray rigs are taking over as there is some scale as usual in most groves.

Papers recently reported Valencias that would concentrate were bringing \$2.40 to \$2.60 on the tree. Melon growers had a good year and prices were good as a rule for quality fruit. Due to the dry weather it is hard to tell about the set of young citrus as there is still considerable dropping.

NORTH CENTRAL FLORIDA

V. E. Bourland

We have had some rain, but irrigation plants are still busy in most groves that have been irrigated. Some new growth, also quite a June bloom in some groves. Fruit is showing up more since getting some size, but some groves in this section are very light, and the growers want a June bloom.

Most of the Valencias have been, are being moved. Most all growers have fertilized. They have had to do lots of dusting, and spraying this spring, or up to date.

Melon growers are still busy, and most of them seem to be smiling.

ADVERTISEMENT — LYONS FERTILIZER COMPANY

*Uncle Bill Says:*

Sometimes we git right amused at the feller who'se got the answer to everything . . . this sort of guy will tell you without battin' an eye jist how to raise yer children, 'er just what you ought to do to make yer crops make bumper yields no matter what may be the weather, 'er how great may be the attacks of insect pests . . . he'll tell you in no uncertain terms what's the matter with the government and how to remedy all the ills in that field . . . he'll tell you why a certain horse failed to win the Derby, or what's makin' yer car act up . . . indeed they ain't nothin' this sort of a feller can't give you the answer to.

Usually, too, this free advice is given you without yer askin' fer it . . . and while at first you sort of pay a little attention to the guy 'cause he sounds so sure of hisself and so positive about everything, but 'long about the time he gives you some sour counsel on somethin' that you know all about, his soundin' off loses a good deal of its appeal.

Now we're no different than other folks . . . we talk a lot of times when we should be listenin' but by and large over a considerable period of years we have got into the habit of goin' to a specialist in the sort of problem that confronts us, when our own mule sense doesn't provide us with the answer.

That's why fer a long, long time we have been counselin' with the Field Service Men of Lyons Fertilizer Company when we want to find the answer to growin' problems we ain't sure about . . . we've found these fellers know their business about growing good crops and fine citrus 'cause it's their business to keep posted . . . and in the final analysis the true measure of their sound counsel is shown when we market our crops . . . a lot of times we've credited them with makin' a nice profit fer us . . . they'll help you too, if you need it!

RE-ELECTED



At the recent annual meeting of Florida Citrus Mutual held in Winter Haven, Hon. Perry Murray was re-elected president of that big organization.

CITRUS INSECT CONTROL FOR JULY 1955 (Continued From Page 3)

oranges to be sold on the fresh fruit market because they are likely to cause "star melanose" and enlarge and darken any other corky growth. However, if the crop is definitely to be sent to the canning plant, copper can be combined with either wettable sulfur or oil emulsion. If a copper-oil is used, especially on young trees, it should not be applied on succulent growth as it may cause burn. Oil sprays have been quite effective in controlling greasy spot and should be used on oranges where the crop

is to be sold on the fresh fruit market.

Timing of applications for greasy spot control is somewhat similar to timing for summer scale control. Treatments of either copper or oil have been effective when applied any time in July and through the first week in August. Treatments made in mid-August or later have not been very satisfactory.

Purple Mite Control: About the only miticide effective in summer is oil emulsion. Oil at 1.3 percent or 0.7 percent oil plus 1 pound of 15 percent parathion per 100 gallons are recommended for the combined control of purple mite and scale.

Rust Mite Control: Infestations are developing rapidly. To prevent early injury, the mites should be controlled before the fruit is heavily infested. Lime-sulfur at 3/4 gallon plus 6 to 8 pounds of wettable sulfur per 100 gallons is very effective. If oil is to follow the sulfur application,

it may be well to omit the lime-sulfur and use 8 to 10 pounds of wettable sulfur or, if the infestation is fairly light, apply a sulfur dust. Lime-sulfur is not washed off the fruit by rains as readily as wettable sulfur and sulfur dust.

For more detailed information refer to the 1955 "Better Fruit Program" or consult the Citrus Experiment Station at Lake Alfred or Fort Pierce.

1954 FLORIDA ANNUAL CROP SUMMARY

(Continued From Page 13)

and production set new records, the value was 3 to 4 percent below 1952-53. As usual, watermelons, snap beans, tomatoes, sweet corn and potatoes covered the most acreage while dollarwise tomatoes with \$39.6 million; snap beans \$18.6 million; potatoes \$14.7 million; celery \$11.7 million and sweet corn \$10.7 million were the top crops.

Lakeland Engineering Associates, Inc.



Classified Ads

SUPERIOR CITRUS TREES — Now accepting orders for Valencia and Pineapple on rough lemon for next Winter planting. Most other varieties available now. Call us 2-7541 for quotation. Leaflet "Tips for Growers" mailed on request.

WARD'S NURSERY
Box 846 Avon Park, Florida

PERSIAN LIME TREES — Ready for delivery. Other popular varieties all on rough lemon root, for delivery now or January, 1955.

ADAMS CITRUS NURSERY
1700 Villa Road Winter Haven, Fla.

FOR SALE

Several thousand Parson Browns on Sour Root Stock, 1" to 1 1/2" caliper. Also have Navels, Pineapples, Dancy Tangerines, Valencias, Murcoits — Pretty Trees. Contact J. EDWIN CAUTHEN, P. O. Box 342, Leesburg, Florida.

BATHE

YOUR WAY to HEALTH



Millions have taken the baths at Hot Springs—America's only health resort with natural thermal waters under the regulation of the Director of the Nat'l. Park Service, U.S. Dept. of the Interior —and, countless people have testified to the magic qualities of these world-famous baths. You, too, can find relief for jangled nerves, aching muscles, stiff joints, hardening of the arteries, and, yes, even rheumatism and arthritis.

THE
Majestic
HOTEL & BATHS

From \$3 per day single
\$4.50 per day double
And you can budget your week at approximately \$4.50 a day



SEE YOUR TRAVEL AGENT OR WRITE
THE MAJESTIC HOTEL FOR LITERATURE

**HOT
SPRINGS**
NATIONAL PARK,
ARKANSAS

Citrus Grower tells:

HOW TO RE-VITALIZE UNTHRIFTY GROVES

with

HYBRO-TITE*

Nature's Own 20-Mineral Soil Conditioner

Lakeland, Florida
March 21, 1955

Mr. George E. Chambliss
Van Skiver Building
Winter Haven, Florida

Dear George:

You will recall that I wrote you last fall enclosing a picture of my grove which had been treated with Hybro-Tite. As stated in my previous letter, this grove, when purchased, was in a run down and somewhat unthrifty condition. Eleven months after Hybro-Tite had been applied, the improvement in foliage, and general tree condition was sufficient to cause considerable comment from experienced citrus growers.

As time went on and the grove continued to improve, this interest on the part of others resulted in attractive offers to purchase. Early this year an offer became alluring enough to persuade me to sell.

The enclosed picture was taken in the same grove last week. The healthy bloom and foliage make it a beautiful sight. Actually, I would be sorry that I sold this property except that I now feel confident that if I wish, I can purchase another grove in poor condition, and bring it to this same degree of perfection through the use of Hybro-Tite, and good grove caretaking.

It would seem to me that more and more grove owners who are not satisfied with their yields should turn to Hybro-Tite and allow the trace minerals and potash, working slowly as they do, to make this remarkable improvement at a trifling cost.

✓ I think, at this time, if I were to try to bring another run down citrus grove into A-1 condition I would use Hybro-Tite, raw rock phosphate and the usual practices of good grove caretaking.

Cordially and respectfully yours,

Ray Clements
RAY CLEMENTS



Mr. Ray Clements (above) attributes the healthy bloom and foliage of these trees to Hybro-Tite and good grove caretaking.



**FREE
VALUABLE
BOOKLET**

For complete information about low-cost, easy-to-use Hybro-Tite, write for your copy of "Nature's Own 20-Mineral Soil Conditioner." It's free! Send a letter or postcard today.

*Trademark of Potash Rock Company of America, Inc.
**Potash—plus aluminum, silicon, sodium, titanium, calcium, phosphorus, magnesium, iron, manganese, strontium, yttrium, silver, zinc, zirconium, lead, cerium, nickel, copper, vanadium.

**Experienced growers comment on improvement . . .
make attractive offers, says Ray Clements, Lakeland, Florida**

You, too, may have a run-down, unthrifty grove.

If you do, you will want to read Mr. Clements' story of the way Hybro-Tite helped to restore his grove to a healthy, profitable condition.

Hybro-Tite is a natural rock soil conditioner, low in cost, easy to use. It contains potash and 19 trace minerals** which may be needed in your soil. As Hybro-Tite weathers, these minerals are gradually released to feed the rootlets. Reports indicate that Hybro-Tite tends to develop better feeder root systems and promote healthy, vigorous growth.

If you are not satisfied with the condition of your trees—if your yields are unsatisfactory—why not try Mr. Clements' method? See what Hybro-Tite can do to put your grove in good condition at low cost.

POTASH ROCK COMPANY OF AMERICA, INC.

Dept. CM-5, Lithonia, Georgia

Some People Eat More Than Others ...

... But one thing is certain everyone must have a certain amount of nourishment in order to remain alive and healthy.

... And the same fundamental principle applies to crops or trees — adequate and proper nourishment is essential to the development of good crops and sound healthy trees.

... We believe that Lyons Fertilizers provide the very maximum of proper plant food nourishment and many of the state's most successful growers who have been using our fertilizers for years will attest to the soundness of this belief.

Right now, in the event you have not already done so, is the proper time to provide your trees and crops with a sound application of fertilizer.

... In citrus production especially it is this summer application which provides the health-giving and strength-building nourishment which means so much to the development of fine crops and the maintenance of good health in your trees.

... So we suggest that you give your trees a break and provide them with the proper plant food through the use of Lyons Fertilizers.

Our Field Service Men will be only too glad to cooperate with you in dealing with any special problems which may be peculiar to your groves ... and completely without obligation, too.

Lyons Fertilizer Company

Phone 43-10

TAMPA, FLORIDA

LYONS
FERTILIZERS
Produce
MAXIMUM CRO
OF
HIGHEST
QUALITY

LOS ANGELES 17. 24. 71